The Plight of Valinor: A Realist's Approach to the Development of Space Law in Future Mars Colonial Society

*Marshall Mckellar and Yvonne Vastaroucha**

Abstract

Air, Water, Food, Shelter, Sleep: These are the five basic requirements for a human being to survive. Providing these basics to a single person is a harrowing challenge; providing them to 1,200 souls on the merciless Martian landscape is nearly impossible. Nonetheless, in 2032 SpaceX successfully constructed Valinor – the first human scientific settlement on Mars-by transporting hundreds of scientists, engineers, scientific experiments and the most technologically advanced survival equipment ever created to the red planet. Each year saw more successful missions to Valinor, and the world community grew more excited about the realization of mankind's expansion into the cosmos. However, after 15 years of exciting scientific discoveries and over 350 billion dollars invested in its survival and sustainability, Valinor remained monetarily profitless. After the stock market crash of 2047, SpaceX was purchased by OnlyEarth Corp., an oil conglomerate that saw Valinor as a threat to its fiscal security. Over the next three years, OnlyEarth reduced its regular supply missions to Valinor, demanding that Valinor produce massive quantities of Martian raw materials in exchange for fresh supplies from Earth. When Valinor refused to comply with these demands, OnlyEarth ended re-supply missions altogether. With the flow of corporate resources now stemmed, Valinor's leadership was forced to redesign the sociopolitical and legal structure of its 1,200+ inhabitants to ensure the colony's survival.

* Marshall Mckellar is Assistant Chief Counsel, NASA: Kennedy Space Center. Yvonne Vastaroucha is National and Kapodistrian University of Athens, Faculty of Law.

Employing the medium of science fiction as a tool for both entertainment and serious inquiry, this paper will utilize 17th and 18th century colonial history to predict the future development of space law by an independent Martian society faced with the possibility of extinction. The present analysis will follow a three-tiered structure, aiming to explore the future through the lens of the past. The first level will examine the legal history of self-subsistent colonies in the New World and Australia, observing how these societies created new legal regimes by incorporating both their European legal heritage and new concepts of law imposed by the necessities of survival. The second level will explore how well-established principles of space law and international law might be adopted, adjusted and re-imagined by a new interplanetary society during its legal formation. Finally, the third tier of this paper will present a historically informed prediction as to how a newly created Valinor might adapt its 21st century legal toolkit to satisfy the needs of a community on the edge of oblivion.

1. A Brief History of Valinor

In the year 2032, SpaceX accomplished what had long been considered an impossible dream: Valinor, the first human scientific settlement on Mars, was finally established. This tiny, delicate outpost of humanity consisted of daring scientists, engineers, scientific experiments, and the most technologically advanced survival equipment ever created. Each year saw more successful Starship missions to Valinor, and the world community grew increasingly excited about the realization of mankind's expansion into the cosmos. For the next decade, SpaceX pushed its business model to the brink, funneling every extra ounce of capital into Elon Musk's most important (and risky) initiative to-date. In the meantime, entities like the International Institute of Space Law (IISL) and the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS) hosted hundreds of talks about the future of Valinor, discussing how it should be treated and governed over time. UNCOPUOS even proposed a draft Resolution to help facilitate an "ideal" legal framework for the unprecedented settlement. However, after 15 years of exciting scientific discoveries and over 350 billion dollars invested in its continued survival, Valinor remained monetarily profitless.

After the world stock market crash of 2047, Elon Musk was ousted from the SpaceX board of directors and the company was purchased by OnlyEarth Corp., an international oil conglomerate that saw Valinor as an impending threat to its fiscal security. Over the next three years, OnlyEarth steadily reduced its scheduled supply missions to Valinor, requesting that Valinor produce large quantities of Martian raw materials in exchange for supplies from Earth. Seeing as no Earth entity other than OnlyEarth had the capability to transfer supplies to and from Mars, Valinor had no choice but

to rapidly repurpose much of its scientific equipment and personnel for resource extraction. However, despite their best efforts, Valinor could never amass enough in situ materials to satisfy OnlyEarth. Every resupply mission came with heftier demands. When Valinor finally refused to comply with its demands, OnlyEarth ended corporate re-supply missions altogether, claiming that continued support of the settlement without guarantee of adequate returns had become financially impossible.

Although many in positions of power sympathized with Valinor, the severity of the global recession soon made it economically and politically taboo to focus attention and resources on a small group of off-world scientists growing potatoes with their biological waste. With the flow of corporate resources now stemmed, Valinor's leadership was forced to quickly redesign the sociopolitical and legal structure of its 1,200+ inhabitants to ensure the colony's survival. Valinor's people needed to establish a microeconomy, amass raw materials and intellectual property to trade in exchange for supplies from Earth, and somehow create a stable legal framework to serve as the foundation of a new independent settlement sitting on the brink of oblivion.

2. Introduction

The last 50 years have generated countless books, articles, and even special conferences to debate the potential legal structure of future human space settlements.[1] Much of the debate has centered around questions of state sovereignty and space resource utilization,[2] attempting to logically extrapolate from the Space Treaties enough positively and negatively inferred meaning to satisfy future questions with long-dated answers. Still, many others have valiantly contributed ethically sound, albeit glowingly idealistic, recommendations for future space settlements,[3] answering George S. Robinson's call to press "*with great urgency to catch up with our unfolding space technology in terms of philosophical, theological, and biocultural constructs necessary for establishing a [space] civilization that reflects not*

1 George S. Robinson, No Space Colonies: Creating a Space Civilization and the Need for a Defining Constitution, J. Space L. 30, (2004), 169, 174. [hereinafter Robinson].

2 See also Marshall Mckellar, "It's Dangerous Business..." The Possible Effects of the Space Resource Exploration and Utilization Act of 2015 on Planetary Defense, 41 J. Space L. (2017).

3 See Robinson, at 173-74; Patricia M. Sterns, Leslie I. Tennen, The Art of Living in Space: International Law and Settlement Autonomy, 35 Proc. On L. Outer Space 213 (1992) [hereafter Sterns & Tennen]; referencing Shurley, Natani and Sengel, Eco-psychiatric Aspects of a First Human Space Colony, in Space Manufacturing Facilities (Space Colonies), 259, 1977; see also, Patricia M. Sterns; Leslie I. Tennen, Jurisprudential Philosophies of the Art of Living in Space: The Transnational Imperative, 25 Proc. on L. Outer Space 187 (1982); Patricia M. Sterns, Leslie I. Tennen, International Law and the Art of Living in Space, Space Policy 9, (1993).

only a framework of values we wish to inculcate at the outset, but the unique demands and physical exigencies, as well..."[4]

Despite the importance of working ahead of time to facilitate the adoption of "*ideals designed to foster the ultimate community,*"[5] few, if any, scholars have produced significant work on what is *actually* likely to occur in the wake of a successful off-world settlement. One may argue the *de facto* impossibility of knowing what will occur in the future, seeing as it is yet to take place, but what if it already has? During the 17th and 18th centuries, envoys of mankind boarded technologically incredible vessels and embarked on one-way journeys across impossible distances; all in the hopes of establishing human settlements on a new world. These people brought with them the cultures, perspectives, ethics, and legal frameworks of their *fundator terrani* – their homeland. Over time, some of these settlements overcame entirely new challenges, faced untold adversities, and evolved into unique communities that lived much differently than their parents and grandparents. Despite the best efforts and best-laid-plans of several *fundator terrani*, these new world colonies never turned out exactly as planned; in fact, two in particular became free societies unlike any other in history. It is these authors' opinion that studying colonial history provides invaluable insight into how communities of human beings settling new worlds tend to evolve beyond the intention and scope of their *fundator terrani*.

Employing the medium of science fiction as a tool for both entertainment and serious inquiry, this paper will utilize 17th and 18th century colonial history to predict the future development of space law by an independent Martian society faced with the possibility of extinction. The present analysis will follow a three-tiered structure, aiming to explore the future through the lens of the past. The first level will examine the legal history of self-subsistent colonies in the New World and Australia, observing how these societies created new legal regimes by incorporating both their European legal heritage and new concepts of law imposed by the necessities of survival. The second level will explore how well-established principles of space law and international law might be adopted, adjusted and re-imagined by a new interplanetary society during its legal formation. Finally, the third tier of this paper will present a historically informed prediction as to how a newly created Valinor might adapt its 21st century legal toolkit to satisfy the needs of a community on the edge of oblivion.

4 Robinson, at 175-76.
5 Sterns & Tennen, at 224.

3. TIER ONE: The legal evolution of self-subsistent colonies in North America and Australia

The practices of both imperial colonization and exploratory settlement making is interwoven with human history and society formation. From ancient times, colonialism played a catalytic role in the economic and political organisation of societies. For example, the first and second Ancient Greek colonizations gave rise to 500 new colonies around the Mediterranean that created new political systems, established the City-State, and achieved greater levels of wealth and prosperity than their metropoles.[6] In more recent times, European Imperialism similarly played a decisive role in the economic, social, and political shaping of our planet, affecting the way our modern world functions. It is these authors' belief that studying the results of European Imperialism may serve as a valuable tool for predicting the way future human settlements on other celestial bodies will evolve. In the first tier of this paper, we will examine the legal evolution of self-subsistent colonies in North America and Australia, observing how these societies created divergent legal regimes by incorporating both their European legal heritage and new concepts of law influenced by the necessities of survival in a foreign land.

3.1. Extractive vs. Settler colonies

Economic historians distinguish the practice of colonization into two main categories: *extractive* and *settler* colonies,[7] or alternatively, *transplant* and *origin* colonies.[8] Extractive colonialism refers mainly to the colonies established by the European powers in Central and South America, Africa, and South Asia. This type of colonization is characterized by a high percentage of native populations, small numbers of European settlers, a relatively mild climate, and an abundance of natural resources.[9] The *settler* category primarily refers to the colonial tactics of the European powers in North America and Australasia. It is characterised by low percentages of natives, high numbers of European settlers, an abundance of mostly unsettled lands, and harsher climates.[10]

6 Peter Funker, Western Greece (Magna Graecia) in: Konrad H. Kinzl,(Ed.) A Companion to the Classical Greek World, Wiley-Blackwell, Oxford, 2006, 154 - 172.

7 Daron Acemoglu, James A. Robinson, The Economic Impact of Colonialism in: Stelios Papadopoulos, Elias Papaioannou (Eds.) The Long Economic and Political Shadow of History Vol.I, CEPR Press, London, 2017, 81-85.

8 Philip Lipton, A History of Company Law in Colonial Australia: Economic Development and Legal Evolution, 31 Melb. U. L. Rev. 831 (2007) [hereinafter Lipton].

9 Stanley L. Engerman & Kenneth Lee Sokoloff, Factor Endowments, Inequality, and Paths of Development Among New World Economies, Working Paper for USA's National Bureau of Economic Research, (2002), 11-12. [hereinafter Engerman &Sokoloff]

10 Engerman & Sokoloff, at 14-15.

Comparative studies on colonies developed during similar time periods – such as Argentina and Australia, or Mexico, Peru, the U.S., and Canada – help express the striking differences in the institutions established in each area. The actions of Spain in Central and South America, or France and England in the Caribbean, saw the enslavement of the native populations, extensive exploitation of the regions' natural resources, and the disproportionate amassing of wealth by a small number of elite traders and Imperial governors.[11] These societies often began with extreme inequality, and even after their independence, the well-established elite classes introduced legal regimes that reinforced their disproportionate share of political and economic power at the expense of the general populace, producing self-perpetuating systems of inequality with little access to wealth or opportunity.[12]

Settler colonies, on the other hand, were established partly as a natural result of the exploration of new continents, and partly as satellite expansions of the European way of life. England's immigration – and penal policies – allowed consistent migratory flows to the New Worlds of what is now the United States and Australia. Settler colonies were established with representative institutions capable of promoting what the settlers wanted, namely "*freedom and the ability to get rich by engaging in trade.*"[13] As a result, the societies formed by settler colonists began their social and legal evolution with institutions already in place that were similar to their metropole, yet allowed for the wide distribution of private property and fundamental checks/balances against the worst forms of governmental abuse of power. The settler colony method facilitated more economic opportunities for a greater percentage of the population, a far healthier per-capita income across the board, and set the stage for the evolution and adaptation of inherited institutions for the benefit of colonial communities trying to survive in these new worlds.[14]

3.2. A Brief Overview of the Ways in Which Law Evolved in Colonial America and Australia

As previously stated, it is these authors' submission that studying past colonial ventures in America and Australia allows one to make informed predictions as to the nature of future colonial ventures on celestial bodies. Because the purpose of this paper is to present a realist's approach to the future development of space law in a Moon/Mars settlement, the transplant

11 Engerman & Sokoloff, at 17-28.

12 Engerman & Sokoloff, at 17-28; Daron Acemoglu, James A. Robinson, Why Nations Fail, first ed., Profile, London, 2012, 335-367 [hereinafter Acemoglu & Robinson].

13 Daron Acemoglu, Simon Johnson, James A. Robinson, The Colonial Origins of Comparative Development: An Empirical Investigation, The American Economic Review 91, (2001), 1374 [hereinafter Acemoglu et al.].

14 Acemoglu & Robinson, at 302-334; Engerman & Sokoloff, at 17-28.

colonies of America and Australia, in particular, present excellent cases for such analysis, seeing as these entities arguably share the most in common with the brave souls trying to forge a new life in Valinor. In both America and Australia, incredible adaptations occurred in a relatively short timespan, transforming what were once dependent imperial colonies into sovereign nations with unique identities and laws.

3.2.1. On the American colonies

In a time before steam engines and airplanes, sailing on a wooden boat from Europe to North America was the equivalent of catching a 3-6 month Starship ride to Mars. This served as the ultimate, permanent field trip for Europeans wanting some "space" from Imperial mom and dad. In order to exert influence over such great distances, European powers (Britain in particular) relied on its regional governors, old-world legal regimes, and the threat of force to maintain lordship over their satellite realms.[15] This approach worked – for the most part – until the colonies felt the inevitable dissonance of distance. Colonists in America felt this most keenly through the influence of their Colonial governors placed in power by Britain.[16] 18th century British politics is famous for its deep corruption, rooted in the power of the colonial governors – bestowed by the monarch – to act as the outstretched hand of God, even thousands of miles removed from their source of power.[17] In addition to their affluence for corruption, governors had a tendency to lack a basic understanding of their constituency.[18] This misunderstanding of their context often led to "*incomplete application, resistance, and reinterpretation of European categories in indigenous terms*."[19]

The negative influence of imperial governors acting as the hand of a distant *fundator terrani* served as a powerful incentive for colonists to shake off their old world masters. It mainly allowed the steady rise of lesser classes into positions of power; positions that would not have been possible to achieve in the deeply ingrained class systems of Europe and Britain.[20] This was due in part to colonists' use of their freshly budding legal institutions to pursue these

15 Louis J. Jr. Sirico, How the Separation of Powers Doctrine Shaped the Executive, U. Tol. L. Rev. 40, (2009), 617 [hereinafter Sirico]; Donald S. Lutz, The Origins of American Constitutionalism, first ed., LSU Press, Los Angeles, 1988, 148; M.J.C. Vile, Constitutionalism and the Separation of Powers, second ed., Liberty Fund, Indianapolis, 1998, 144-45.

16 Sirico, at 622-23.

17 Sirico, at 623.

18 Sirico, at 618.

19 Sally Engle Merry, Colonial Law and Its Uncertainties, Law & Hist. Rev. 28, (2010), 1067 [hereinafter Merry].

20 Merry, at 1067.

new opportunities for people of low social status.[21] The combination of inept imperial governance with a rising lower/middle class is the oil in which the American revolution (amongst others) eventually cooked.[22]

The entirely unique circumstances faced by new world colonists helped catalyze legal innovation in their foundling societies, fighting to dig new roots in a new world. The rapid economic development seen during the birth of these colonies was directly tied to their dynamic legal structure. Some commercial practices progressed irrespective of the law and in direct response to economic necessity. When unique circumstances arose, the law evolved to meet and respond to those needs.[23] The slave trade and its footprint in the colonial legal framework is a characteristic example of this reality. By the mid 17th century, the slave trade was already thriving in the American colonies, riding on the back of a profitable plantation economy.[24] During the first few decades of colonization in America, it appears that there existed neither a practice of slavery, nor any legal mention of it; however, both the practice itself and legal documentation of its existence soon arose seemingly *ex nihilo*.[25] The primary driver for this sudden arrival was undeniably its economic convenience.[26] Strangely, no legitimate legal precedent for the practice of slavery existed in Britain at the time of its adoption in the American colonies. In fact, British common law contained a tradition of expressly anti-slavery rhetoric.[27] Nonetheless, due to the American colonists' reliance on slave labor for the survival of their economy, the common law – after it crossed the Atlantic – "*was received selectively, which prerogative theory allowed... In the case of the colonists, their prerogative framework permitted them to create a property interest in persons, as well as a private realm for slave governance*."[28]

As previously described, new world colonists tended to take with them "*only such portions of the statute law and the common law of the mother country as were in force at the date of the settlement and were applicable to its condition*."[29] The American colonies wasted little time putting English legal norms into the furnace, testing which were actually useful in the new world

21 Merry, at 1068.
22 Merry, at 1070.
23 Sirico, at 617.
24 Jonathan A. Bush, Free to Enslave: The Foundations of Colonial American Slave Law, Yale J.L. & Human. 5, (1993), 419 [hereinafter Bush].
25 Bush, at 421.
26 Bush, at 438.
27 Bush, at 419.
28 Bush, at 469.
29 Kwamena Bentsi-Enchill, The Colonial Heritage of Legal Pluralism (The British Scheme), Zam, L.J. 1, (1969), 11 quoting Caterally Caterall (1847) 1 Rob. Eec. 581; see also, Ford Hall, The Common Law; An Account of its reception in the United States. 4 Vanderbilt i. Rev. 791 (1951).

and which were Imperial excess. In Wessex county, Virginia alone, between the years 1672 and 1684, county residents filed over 3,000 actions in court, "*a remarkable number indeed, when the reader recalls the expense of filings and the dangers of travelling about in a colony wracked by Indian wars.*"[30] However, this high amount of litigation was not evidence of a pathological society. Instead, it was positive movement towards social stability and a "*device for testing what was useful about the English legal heritage in an American setting.*"[31]

Distance, colonists' perception of starting anew and the unique circumstances of colonial life on alien and desolate lands changed the identity, intent and values of these people; this, in turn, solidified the evolutionary trajectory of colonial law and resulted in impressive sociopolitical breakthroughs.[32] In America, colonists' disdain for their British governors serves as a wonderful example. This long-remembered disdain was ultimately reflected in the makeup of post-revolution state constitutions and the Articles of Confederation, which famously created a strong legislative branch and a much weaker executive.[33] However, this system was fraught with its own short-comings, and the governmental structure that once gave colonists peace of mind instead became the cause of inefficiency and socio-political frustration. Soon, the newly independent colonists matured their political ideology so significantly that the confederation of states participated in the creation of an entirely new form of government. "*There was much room for improvement to the system that existed under the Articles [of Confederation], especially in commerce and foreign policy … Public opinion gradually shifted towards nationalism because the public itself perceived problems that were not being addressed by the Confederation Congress and perhaps were not solvable under the Articles.*"[34] After only a few short years under the Articles of Confederation, the colonists' quickly evolving identity made possible the drafting and ratification of the American Constitution.[35] *"Minds turned from dependency to self-sufficiency, and from a history that worked out the imperial legacy to one of self-discovery."*[36]

30 Warren M. Billings, Law in Colonial America: The Reassessment of Early American Legal History, Mich. L. Rev. 81, (1983), 956 referencing David Konig, Law and Society in Puritan Massachusetts (1979).
31 Billings, at 956.
32 Billings, at 955.
33 Sirico, at 622-23.
34 James E. Viator, Give Me That Old-Time Historiography: Charles Beard and the Study of the Constitution, Part II, 43 Loy. L. Rev. 323 (1997) [hereinafter Viator].
35 Viator, at 323.
36 Stuart Macintyre, A Concise History of Australia, third ed., Cambridge University Press, New York, 2009, 3.

3.2.2. On the Australian Colonies

In a similar fashion to the development of law in America, post-colonial Australia turned into something entirely new and unique. A copy of Blackstone's Commentaries of the English common law on board the First Fleet was the primary legal reference for the colonists in the first years of their settlement.[37] However, Blackstone's *Commentaries*, originally published in 1765, quickly became outdated thanks to the very nature of the English common law and the rapid evolution of the Australian society.[38]

When examining the early years of Australian legal history, the status of the convict settlement and its subjects should be taken into consideration. The colony was originally governed under a military regime, its subjects lacking many of the rights free English citizens enjoyed in the late 18th century. Nevertheless, the Australian convicts did have sufficient legal rights to begin setting up an independent economy. The strict rule of the colony's military administration laid solid regulatory foundations.[39] Additionally, the convicts were mostly healthy males in their prime working-age years, a fact that allowed the dependency rates within the colony to remain low, seeing as the fledgling pioneer community could not support aged, weak or underage members.[40] However, that began to change with the emergence of the dual-labor market. Under this system, the convicts could both work for the State (as part of their penalty) and in their free time for private employers.[41]

This peculiarity of the early Australian economy allowed the creation of a sturdy financial framework for the State in parallel with an active private sector.[42] Thanks to the dual market and the great distance from the direct English rule, the roles of the penal settlement got blurred, as officers, convicts, and emancipists – convicts whose sentences were completed and who chose to stay in the colony – engaged indiscriminately in commercial pursuits.[43] Within a *de facto* classless community, market forces were allowed to emerge from scratch, avoiding the hurdles faced by the slow-moving economies of Europe dealing with the struggle between deep-rooted feudalism and early capitalism.[44] Australian society was small, closed, surprisingly educated – seeing as the majority of convicts had committed

37 Bruce Kercher, An Unruly Child: A History of Law in Australia, first ed., Unwin and Allen, Sydney, 1995, xii [hereinafter Kercher].
38 Kercher, at xiii - xiv.
39 Ian W. McLean, Why Australia Prospered: The Shifting Sources of an Economic Growth, first ed., Princeton University Press, New Jersey, 2013, 45-46 [hereinafter McLean].
40 McLean, at 45-46.
41 McLean, at 46-47.
42 McLean, at 49.
43 McLean, at 44-50.
44 McLean, at 46.

petty or political crimes[45] – and had a common goal: to make the best of what they had.[46] The different and often contradictory roles colonial workers often took not only led to the mingling of the classes, but also accelerated the recognition and protection of their personal and economic rights.

Within the first 40 years, the judicial system had strayed away from classic notions of traditional English common law. Amateur judges and lawyers adapted law to fit the local needs.[47] The very first case to be adjudicated in the colony revealed the aforementioned tendencies. In the *Kable vs. Sinclair* case, the Kable couple, both condemned to death and reprieved, sued Duncan Sinclair, the master of a First Fleet vessel, for the loss of their belongings during their exile journey to Australia. Although Blackstone's Commentaries stripped condemned criminals off any legal right, the appointed judge awarded £15 damages for the lost baggage.[48] This ground-breaking decision not only recognized the right of personal property ownership to criminals, but also the ability to enforce those rights in the court system, clarifying that the convicts' legal position would be close to that of an English citizen.[49]

The 1865 Colonial Laws Validity Act was introduced after several decades of Australian laws that contradicted or altered the imperial ones. The act allowed colonial legislatures to pass local laws either adopting, rejecting, or ignoring general English laws and statutes, unless they contradicted to paramount imperial force Acts.[50] This was an answer to Australian deviations from imperial law which were observed in the areas of property, trade, company and labour law. Characteristic examples were *inter alia* the local Supreme Courts' power to adjudicate cases of bankruptcy, provide full bankruptcy relief to all debtors, and the allowance to married women to divorce, hold property, and run businesses under their own names. These changes would take England more than 50 years to introduce.[51]

Public law followed private law's path. The *New South Wales Act* of 1823 introduced a new and simpler court structure, new Supreme Courts, and a legislative council. The Supreme Courts imposed limits on the actions of the autocratic governor appointed by England. These changes gave rise to the introduction of an elected legislature, trial by jury, and male suffrage.[52] By 1856, the first Australian colony – New South Wales – had its own constitution, an elected bicameral parliament that exercised legislative

45 Kercher, at xiii.
46 McLean, at 47.
47 Kercher, at 42-46.
48 Kercher, at 22-23.
49 Kercher, at 22-23.
50 Kercher, at 124-126; Alex C. Castles, The Reception and Status of English Law in Australia, Adelaide L. Rev. 2, (1963), 22-31.
51 Kercher, at 49-52, 72, 138.
52 Kercher, at 69-73; McLean, at 63-67.

authority, self-government for the executive, and universal male suffrage.[53] In Britain, there was no universal male suffrage until 1917.[54] "*Once again, the legal ideas for reform in the Australian colonies may have been recognisably British, but the reforms themselves were put into effect in the colonies decades earlier.*"[55]

3.2.3. The key is property

The most important result of this evolution both in America and Australia was undoubtedly the protection of individual property rights for a wide spectrum of the population. Economic historians have continually found direct correlations between secure property rights and an emerging colonial society's economic and social success.[56] They argue that the long-term success or failure of any given colony depended largely on what method of colonization was originally employed by the European powers.[57]

One of the reasons colonial societies in North America and Australia experienced vastly more sustainable economic and social systems was Britain's policy to allow the settlement of its – unwanted – citizens to the newly acquired lands; a move that later facilitated access to wide land ownership, protection of intellectual property, and a relatively equal access to economic opportunities.[58] This was in stark contrast to contemporary colonies of Spain in Mexico and South America, where extractive colonialism created deep inequalities among the population influencing "*the way in which institutions evolved and helped foster persistence in the degree of inequality over time.*"[59] The aforementioned theory is reflected in the early U.S. banking system, where efficiency, mobility, flexibility, and active competition fostered widespread growth in the economy.[60] Meanwhile, its contemporaries in Mexico and South America, where "*the chartering of banks was tightly controlled by the national governments, leading to highly concentrated financial sectors dominated by a few banks*," facilitated the hoarding of wealth in few hands and stunted the growth of those economies.[61]

This does not mean that the danger of inequality was never apparent in Britain's settler colonies. However, the long-standing tensions and processes between the colonies and the Imperial rule on the economic, social and legal fields eventually favored equality. In Australia, for example, the abundant

53 McLean, at 63-67, 79.
54 Kercher, at 78.
55 Kercher, at 78.
56 Acemoglu et al., 1369.
57 Lipton, at 829.
58 Engerman & Sokoloff, at 18-20.
59 Engerman & Sokoloff, at 23.
60 Engerman & Sokoloff, at 48.
61 Engerman & Sokoloff, at 30.

lands allowed the expansion of its economy through merino sheep farming.[62] The flock's owners *squatted* large areas of Australian grasslands, creating huge estates and forming a rich oligarchy. However, the squatters did not own the land they used. They simply leased their acres from England, which did not release its property rights until the 1860s.[63] Argentina, which evolved contemporaneously with Australia, allowed its respective wealthy elite to appropriate vast acres of land, leading to the eventual control of the government by the rich oligarchy and the deepening of inequality, as analyzed previously. In contrast, the English Crown, after heated Australian upheavals, divided and re-allocated the leased lands to a larger number of farmer families, diminishing the power of the wealthy squatters and ensured maximum productivity and a more equal distribution of ownership across the colonists.[64]

Despite being separated by great distances, colonies in what is now the U.S. and Australia followed similar paths of success, emphasizing efficiency in economic development and enhanced protections for property rights.[65] To their credit, these societies retained the beneficial aspects of inherited legal systems brought from Western Europe that ultimately facilitated their upward trajectory. Additionally, these new societies stood up and fought for whatever they deemed was still missing from their legal and social arsenal, both in the courtroom and (in the case of the U.S.) the field of battle.[66] By the time British Imperial armies actually arrived in the American colonies to quell the revolution, they were already facing a society with its own identity, values, and customized legal foundation.[67]

4. TIER TWO: This tier will explore how well-established principles of space law and international law might be adopted, adjusted and re-imagined by a new interplanetary society during its legal formation.

In the previous sections, the authors used historical examples to present the way common law evolved through its transplantation and adaptation in the English colonies. The crucial point here is the evolutionary effect the colonies had on the common law system. It was not merely an imposition of Imperial Acts to the new societies, although the latter were considered part of the

62 McLean, at 58-61.
63 McLean, at 69-73, 96-100.
64 McLean 96-100; Carlos F. Diaz Alejandro, Argentina, Australia and Brazil Before 1929 in: D.C.M Platt, Guido di Tella (Eds.), Argentina, Australia and Canada: Studies in Comparative Development 1870 - 1965, MacMillan, London, 1985, 101-102.
65 Lipton, at 828.
66 Acemoglu et al., at 1369-1401.
67 Morton J. Horwitz, The Transformation of American Law 1780 – 1860, first ed., Harvard University Press, Cambridge,1977, 5.

English imperium, but more of a procedure of trial and error of the already well-established common law principles and procedures.

At this point it would be useful to clarify the legal position of Valinor before its transition to a newly independent extraterrestrial entity. Valinor is a human colony established by a U.S. based private company comprised of members of different nationalities. Article VIII of the Outer Space Treaty[68] (and the relevant articles of the Registration and Liability Conventions) grant the exercise of jurisdiction and control of the settlement to the U.S., while the legal fate of the settlement's subjects will fall either under the jurisdiction of the launching State – as *personnel thereof* – or most probably under the jurisdiction of their States of origin, following a model similar to that of the International Space Station.[69] It soon becomes clear that current space law creates legal ambiguities, as it transfers a weird combination of international and national policies to a human settlement on another celestial body. This may work for space settlements of few people – like the ISS – but for a community of hundreds, or even thousands, this can easily prove rather cumbersome. The question raised here is whether the present legal reality is viable for the future functioning of the colony and eventually, which is the legal system to be transplanted and adapted into the new extraterrestrial society.

Because the application of clashing national policies on Valinor would most likely prove dysfunctional, we turn our attention instead to general international law for answers. International law, as it stands today, is recognized as a legal system of its own. Although it has strayed away from Lauterpacht's original idea, of *"a complete, common law type of legal system that would lead to the liberation of individuals in a global federation under the rule of law,"*[70] it is still considered an entity with established hierarchies, general rules, core principles, and a clearly defined objective.[71] "*When the rules run out, or regimes fail, then the institutions always refer back to the general law that appears to constitute the frame within which they exist.*"[72]

68 Treaty on the Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, art. VIII, opened for signature, Jan. 27, 1967, 610 U.N.T.S. 205. [hereinafter Outer Space Treaty].

69 International Space Station Intergovernmental Agreement, http://www.spaceflight.esa.int/documents/cupola/iss-general-information.pdf (Last accessed 2.10.19).

70 H. Lauterpacht, The Function of Law in the International Community, 2011 ed., Oxford University Press, London, 1933, p. 430-432.

71 Martii Koskenniemi, The Fate of Public International Law: Between Technique and Politics, Modern Law Review 70, (2007), 15-17 [hereinafter Koskenniemi].

72 International Law Commission, Fragmentation of International Law. Problems caused by the Diversification and Expansion of International law, Report of the Study Group of the International Law Commission, A/CN4/L.682 (2006), 97; Koskeniemmi, at 17.

The breadth and width of general international law provides Valinor an expansive toolkit for crafting its very own unique legal framework. As defined by functionalism, law is meeting the needs of efficiency in order to promote an optimal allocation of resources, effectively following a Darwinian-like process of natural selection.[73] Similarly to how natural selection evolved the law in settler colonies of the 17th and 18th centuries, the legal principles most likely to survive in Valinor are those malleable enough to adapt in response to the unique circumstances and specific needs of an off-world entity. Although it is generally assumed by the legal community that an entity like Valinor would adhere to the principles established by the United Nations space treaties, historical precedent predicts that such a distant settlement as Valinor is unlikely to hold itself accountable unto principles of international law if those principles fail to promote its immediate survival, economic interests, or social evolution. Although Valinor began its existence subject to national oversight and general international law under the Outer Space Treaty, it is likely to knead this inherited legal clay into vessels that better serve its essential needs.

These new legal vessels are expected to evolve not only pursuant to the challenges created by new habitats and radically different ways of living, but also according to the colonization/settlement methods applied on other worlds. As previously discussed, the types of colonization imposed on the New World under British imperialism played a catalytic role in the types of institutions established in these areas. In extractive colonies, imperial institutions afforded property rights over natural resources exclusively to elite classes, creating unequal distributions of wealth and weaker long-term economic models. Alternatively, institutions promulgated in settler societies created opportunities for the dispersal of property rights to a wider swath of the population, resulting in a more equal distribution of wealth and the growth of society to greater levels of prosperity.

Thus, colonial history teaches that one of the key differences between successful and failed colonies (and consequently, societies as a whole) is its approach to property rights. Even during the final discussions leading up to the Moon Agreement, although the appropriation of planetary resources was not to be explicitly allowed, scholars proposed the inclusion of provisions that would create a special regime for future space settlers, allowing for the protection of their rights over the *in situ* resources of celestial bodies.[74]

73 Robert C. Clark, The Interdisciplinary Study of Legal Evolution, Yale Law Journal 90, (1981),1238; E. Donald Elliott, The Evolutionary Tradition in Jurisprudence, Columbia Law Review 85, (1985), 38; Simon Deakin, Evolution for Our Time: A Theory of Legal Memetics, Current Legal Problems 55, (2002), 1.

74 Agreement Governing the Activities of States on the Moon and Other Celestial Bodies art. 7, U.N. Doc. A/34/46 (Dec. 18, 1979) [hereinafter Moon Agreement]; J. Henry

Valinor shares many traits in common with settler colonies. Like colonial New South Wales and the American colonies, Valinor is a small community 6-months travel from its metropole, aiming to settle and survive in a severely harsh environment. In order to succeed in the long term, future off-world legal institutions will likely turn towards the provision and protection of property rights over *in situ* natural resources for a majority of the society. In repeating such historical patterns, a settlement like Valinor could create incentives not only for its own survivability, but also for long term economic sustainability.

5. TIER THREE: Based on Historical Precedent, Valinor Will Not Play by the Rules – They Will Make New Ones

When considering historical precedents established by previous colonial entities, and in light of key shortcomings on the part of both general international law and space law, it is these authors' submission that Valinor will not play by pre-existing rules: they will make new ones. Like settlers in the American and Australian colonies, Valinorians traversed an impossible distance, began new lives, must overcome extraordinary hardships and will experience profound changes in their values and identity because of it. Influenced by the totality of these combined circumstances – and the inherent deficiencies of current legal structures – Valinor will have to evolve its legal identity. This choice will have two primary drivers: (1) exclusively inherited legal structures cannot possibly anticipate or quickly respond to all the probable circumstances that will arise on a hostile foreign planet, and (2) strict adherence to the legal structures of the *fundator terrani* will not always promote the best interests of the settlement.

5.1. Exclusively inherited legal structures cannot accommodate for and quickly respond to all the probable circumstances that will arise on a hostile planet

As previously discussed, attempting to govern Valinor by using a conglomeration of national laws between the states of each nationality present on Valinor – like the International Space Station – would be a horrendous task. Even Earth's significantly developed body of general international law does not adequately anticipate or account for a single community isolated on a barren world. After all, unless Valinor interacts with entities from Earth, it will never encounter space actors under the jurisdiction of its old *fundator terrani*. Like settlers of previous centuries, Valinorians are to encounter physical, psychological, and environmental hardships that have never before been experienced by humankind. Any aspect

Glazer, Domicile and Industry in Outer Space, Colum. J. Transnat'l L. 17, (1978), 76-78.

of a legal regime that is not capable of accounting for, quickly responding to, and adapting to meet these challenges will be left behind like a blown-out tire. Ultimately, Valinor would only handicap itself by attempting to maintain compliance with Earth regimes. Not to mention, Earth entities would only be fooling themselves by thinking they could exert effective control over a community of human beings living unimaginable lives on another planet.

5.2. Strict adherence to the legal structures of the fundator terrani will not always promote the best interests of the settlement

Not only would relying on inherited legal structures imposed by a *fundator terrani* likely prove inefficient for a colony 250 million miles from Earth, but those legal structure – and the *fundator terrani* itself – may not have Valinor's best interests at heart. Much like Britain and the American colonies before the revolution, Earth entities like OnlyEarth Corp. likely will not share the same values as Valinorians over time.[75] Sterns and Tennen warn of the potential risks involved with the exercise of detached control by a *fundator terrani*, noting that "*the founding entity or other ens given extended jurisdiction by Article VIII is not in a realistic position to effectively administer the everyday operation of the settlement.*"[76] They also warn of potential conflicts arising due to fluctuating financial interests a *fundator terrani* may develop in an off-world settlement.[77]

In the same way that the law in Britain was created to serve the interests of Britain, Earth law evolved over time to serve and regulate Earth entities with Earth problems. Like its trans-century predecessors in the American and Australian colonies, Valinorians will take whatever actions necessary to survive and thrive, regardless of whether the law already facilitates those actions. If a set of actions or activities become routinely useful for survival, Valinorian society will wrap those activities with legal protections, and those protections will in turn become part of Valinor's socioeconomic and legal identity. Even if Valinor temporarily submitted itself to elements of international law – like treaties, bi-lateral agreements, MoUs, and international custom – when building trade relationships with earth entities, such does not negate its right to govern itself as a functionally independent entity. Failure to govern itself accordingly would open the floodgates for entities like OnlyEarth to take advantage of Valinor's position, without due regard to the fragility of their position. It is for these reasons that the authors of this paper believe Valinor, and future off-world settlements under similar circumstances, will not be subject to their inherited frameworks: they will instead build new ones.

75 Sterns & Tennen, at 214.
76 Sterns & Tennen, at 215.
77 Sterns & Tennen, at 215.

6. Conclusion

After nearly six months of radio silence between Valinor and its corporate managers at OnlyEarth, many on Earth feared the settlement may have collapsed in a political upheaval, or suffered an environmental catastrophe. OnlyEarth remained defiant in their decision to withhold re-supply missions, and Valinor refused to guarantee OnlyEarth's demands for raw materials. However, halfway through the sixth month, Valinor established communications once more with Only Earth, calling themselves the Independent Settlement of Valinor. They then proceeded to publish to the interplanetary internet the Constitution of the Independent Settlement of Valinor for Activities Conducted in Outer Space or on Celestial Bodies. The newly elected Valinorian president announced that the settlement was open for business to trade with any Earth entity willing to make the voyage to the red planet, declaring ownership over Valinor's growing stockpile of both physical and intellectual property created by Valinorians on Mars. OnlyEarth was shocked by Valinor's newfound sociopolitical stability, and angered that their fledgling corporate asset was now demanding cryptocurrency, supplies, and services in exchange for Martian raw materials and new STEM-related IP.

As OnlyEarth deliberated as to how they should respond to Valinor's declarations, multiple rising powers in the interplanetary space industry began pursuing trade deals with Valinor, investigating ways to transfer materials from Mars to Earth without the added risk of sending crewed Starships. Over the next five years, Valinor invented new ways to conduct trade with Earth, leveraging OnlyEarth's competition against them. Wielding the power of a determined community of brilliant survivors and a newly minted constitution, Valinor behaved like a young nation, prompting Earth's United Nations to enter deliberations about the nature of off-world settlements and their right to self-determination. However, while the U.N. deliberated, Valinor remained hard at work shaping its laws and policies to better facilitate its continued survival. As the Earth slowly crawled out of its greatest depression, a young generation of innovators and explorers once again dared to dream of leaving the home-world for a chance at starting over somewhere new, alongside a community bound together by struggle and necessity. Once again, the Earth's young peered into the night sky and dreamed of being Valinorians.